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Cognitive–Behavioral Treatment for Severe Anger in Posttraumatic Stress Disorder

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With a randomized group design, a 12-session anger treatment was evaluated with severely angry Vietnam War veterans suffering combat-related posttraumatic stress disorder (PTSD). Eight participants in anger treatment and 7 in a routine clinical care control condition completed multiple measures of anger control, anger reaction, and anger disposition, as well as measures of anxiety, depression, and PTSD at pre- and posttreatment. Controlling for pretreatment scores, significant effects were found on anger reaction and anger control measures but not on anger disposition or physiological measures. Eighteen-month follow-up (for both completers and dropouts) supported the posttreatment anger control findings. The challenges of treatment research with this refractory population are discussed.

Violence is a major societal concern (Reiss & Roth, 1993). Anger is an antecedent of both impulsive and premeditated violence and is a prominent feature of many clinical disorders (e.g., posttraumatic stress disorder; PTSD). Veterans with combat-related PTSD—compared with non-PTSD combat veterans, other veterans, and the general male population—have been found to be significantly angrier in epidemiological (Kulka et al., 1990) and laboratory (Chemtob, Hamada, Roitblat, & Muraoka, 1994) studies. Anger and aggression have adverse impacts on families, work settings, and society, and veterans often consider anger their most salient problem (Blum, Kelley, Meyer, Carlson, & Hodson, 1984).

Regarding the relationship between anger and PTSD, Chemtob, Novaco, Hamada, Gross, and Smith (1997) proposed that, in PTSD, anger is intrusive and associated with heightened arousal, hostile appraisal, and antagonistic behavior in response to severe threat. This dysregulatory aspect of PTSD includes failure to inhibit context-inappropriate activation of a "survival mode" of functioning, characterized by cognitive structures, including anger, which support adaptive response to life-threatening situations (Chemtob, Roitblat, Hamada, Carlson, & Twentyman, 1988). The activation of survival mode facilitates conjoined anger and aggression.

The effectiveness of cognitive–behavioral anger treatment has been supported in experimental, multiple baseline, and case study evaluations with diverse clinical populations (Novaco, 1994b). However, there is, as yet, no empirically supported approach to treating anger in PTSD. Consequently, this study sought to evaluate the efficacy of anger treatment for angry veterans with PTSD. Patients were seeking treatment and could, therefore, not ethically be denied treatment. Therefore, all participants received routine clinical care for PTSD. The specialized anger treatment served as the comparison to this care.

Participants were randomly assigned to either (a) a group receiving only routine clinical care (RC) for PTSD or (b) a group receiving specialized anger treatment (AT) as an adjunct to routine care. Recognizing anger's multidimensionality, we measured (a) anger disposition, assessing traitlike aspects of anger responding; (b) anger reactions, pertaining to the impact of situational provocation; and (c) anger control, reflecting the capacity for anger regulation. It was hypothesized that the AT group would show significantly greater improvement on these measures than the RC group.

Method

Participants

Inclusion–exclusion criteria. Our inclusion criteria were as follows: (a) status as a male Vietnam War combat veteran, (b) a score >107 on the Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988), (c) a score ≥90 on the Novaco Anger Scale, Part A (NAS-A; Novaco, 1994a) and a score ≥65 on the NAS, Part B (NAS-

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An extended description of the research is available from Claude M. Chemtob.

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B), and (d) current PTSD, as assessed by the Clinician-Administered PTSD Scale, Form 1 (CAPS; Blake et al., 1990). Exclusion criteria were as follows: (a) a history of organic brain disorder, (b) psychotic symptoms unrelated to PTSD on the psychosis screening module of the Structured Clinical Interview for *DSM–III–R*, Nonpatient–Outpatient Version (SCID-NP/OP; Spitzer, Williams, Gibbon, & First, 1988), and (c) schizoid, schizotypal, paranoid, borderline, or antisocial personality disorder as assessed by the Personality Disorders version of the SCID (SCID-II; Spitzer, Williams, Gibbon, & First, 1989).

Sample attrition. Seventy-seven veterans were referred. Seven declined participation. Four were ineligible, 16 did not complete diagnosis, and 15 did not meet study criteria. Of the 35 eligible participants, 7 declined treatment. Of the 28 men who began treatment, 13 dropped out and 15 completed treatment and posttreatment assessment. These 15 men constitute the study sample (8 in AT, and 7 in RC).[1]

Treatment sample characteristics. Demographic data on age, education, race, and marital status, as well as screening data on anger, PTSD, and combat exposure (see Egendorf, Kadushin, Laufer, Rothbart, & Sloan, 1981) are given in Table 1.

Sample representativeness. Compared with 170 consecutive admissions to a specialized Veterans Affairs (VA) PTSD outpatient clinic, our sample was not significantly different from the clinic admissions in age, marital status, or ethnicity. On PTSD severity, our sample's Mississippi scores (M = 130.3; SD = 13.5) were significantly higher than those of the clinic patients (M = 118.6, SD = 23.7). Our sample's scores were significantly higher than those of the clinic sample, $t(147) = 2.90$, $p < .008$, and far exceeded the cutoff score of .89 used by Kulka et al. (1990) to diagnose PTSD.

Our sample comprised extremely angry veterans. Their mean NAS-A score of 112.7 (SD = 15.8) was significantly higher than that of a subset of the PTSD Clinic sample (M = 97.61, SD = 20.74) for whom the NAS-A scores were available, $t(146) = 2.73$, $p < .007$, and was much higher than that for 158 California State Hospital civic commitment and forensic psychiatric inpatients (M = 90.1; SD = 18.2; Novaco, 1994a).

Comparing completers with dropouts. Comorbidity was comparable across treatment conditions. One-way analyses of variance (ANOVAs) were used to compare the Mississippi and NAS-A screening scores of the 15 veterans who completed treatment (completers), the 23 veterans eligible for treatment at screening but who refused to complete the diagnostic assessment (n = 16) or who refused to participate in treatment (n = 7) (refusers), and the 13 veterans who started treatment but dropped out (dropouts). No significant differences were found on the Mississippi (completers, M = 130.3; refusers, M = 131.0; dropouts, M = 131.6), the NAS-A (completers, M = 112.7; refusers, M = 117.2; dropouts, M = 117.2), age, or education.

Informed consent. Participation did not affect veterans' services, benefits, or compensation. Signed consent was obtained. Study records were separate from other VA records.

Table 1
Demographic and Screening Data for Treatment Groups

Demographic and screening data	Anger treatment (n = 8)	Routine care (n = 7)
Demographic		
Mean age (and *SD*)	49.2 (5.8)	45.3 (4.3)
Mean (and *SD*) for education completed		
High school	4 (50.0)	3 (42.9)
Some college	1 (12.5)	3 (42.9)
College	3 (37.5)	1 (14.3)
Race		
n (and %) Caucasian	4 (50.0)	4 (57.1)
n (and %) Asian–Pacific	4 (50.0)	3 (42.9)
Mean (and *SD*) for screening data		
Combat Exposure Scale score	10.1 (2.2)	10.3 (3.6)
Mississippi PTSD Scale score	124.6 (14.7)	132.3 (12.9)
Novaco Anger Scale, Part A, score	109.7 (14.0)	116.3 (18.0)

Note. For the Combat Exposure Scale, 10 to 14 is considered heavy exposure.

Procedures

Screening and diagnostic assessment. The Mississippi, the NAS, and a brief Combat Exposure Scale (Lund, Foy, Sipprelle, & Strachan, 1984) were administered at the referring treatment facilities. Structured diagnostic interviews were conducted by the study psychologist or by therapists under his supervision. Interviewers were trained to criterion by either Claude M. Chemtob or Douglas M. Gross on the SCID-NP/OP and the CAPS. Investigators received training on the SCID-NP/OP and SCID-II from a member of the Columbia Biometrics Group team, which developed the interviews. The SCID was used to assess Axis I disorders other than PTSD, and the CAPS was used to diagnose PTSD. The SCID-II was used to diagnose Axis II disorders. An abbreviated form of the War Stress Interview was used to assess military history, combat exposure, nonmilitary trauma history, psychiatric medication history, and social-legal history. Evaluation took 4–6 hr to complete over 2 to 4 weeks, because veterans had difficulty with the task. To protect against rater drift, Claude M. Chemtob reviewed randomly chosen SCID, CAPS, and SCID-II protocols.

Pretreatment and posttreatment assessment. Screened participants were administered the following instruments before and after treatment. To measure anger disposition, we used the Spielberger Anger Expression Scale's (AX) Anger-Out, Anger-In, and Total subscales (the AX Total score combines Anger-In and Anger-Out scores while subtracting the Anger-Control score) and the NAS. The NAS, a two-part instrument designed to measure anger disposition in clinical and normal populations, assesses (a) cognitive, arousal, and behavioral aspects of anger, and (b) anger intensity in response to descriptions of anger-provoking situations. It has high internal (.95) and test–retest (.88) reliability and good validity (Novaco, 1994a).

To measure anger reactions, we used the State Anger Scale (STAS; Spielberger et al., 1985) and ratings of anger in reaction to provocation scripts (described below). To measure anger control, we used the Anger-Control subscale of the AX and ratings of anger control in the anger provocation procedure. Anxiety and depression were assessed using the State–Trait Anxiety Inventory (STAI; Spielberger et al., 1983) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).

To assess reactions to anger provocation, we developed four scripts based on veterans' reports about events that made them angry. One script depicted being challenged rudely by strangers about one's political beliefs. Another involved being cut off abruptly and dangerously in

[1] With respect to comorbidity, 11 of the 15 participants met criteria for at least one current Axis I disorder, in addition to PTSD. All 11 had current substance use disorder (5 were diagnosed with alcohol dependence, 4 with cannabis dependence, 1 with sedative dependence, and 1 with cannabis abuse). One had a mood disorder, 3 had anxiety disorders, and 2 had both mood and anxiety disorders. The 4 participants without current comorbid diagnoses met SCID criteria for lifetime alcohol dependence. None met criteria for a personality disorder (*DSM–III–R* symptoms for these disorders involving anger or aggressive behavior were excluded). Comorbidity was comparable across treatment conditions.

traffic. The third depicted being rudely kept waiting for medication at a VA facility. The last script involved being denigrated by strangers for being a Vietnam veteran. These four scenes were presented, two at pretreatment and two at posttreatment, randomized over trials. Participants visualized the scenes for 3 min.

Procedurally, the NAS, AX, BDI, and STAI were administered first. Next, before the anger provocation procedure, physiological reactivity to a 3-min mental arithmetic task was assessed preceded by a 6-min resting baseline, which also preceded each presentation of a provocation script. Systolic pressure, diastolic pressure, and mean arterial pressure were recorded from the left arm after each stressor and each baseline period with a Critikon Dynamap Blood Pressure Monitor. Heart rate was recorded continuously from the right thumb every second (in beats per minute) and averaged into 30-s epochs using a J & J I330 photoplethysmograph interfaced with a Compaq 386. After visualizing each anger provocation script, the participants used a 7-point rating scale to indicate how well they maintained a mental picture of the situation and visualized themselves in it. Following Novaco (1975), measures of anger reactions and anger control were obtained for each provocation script using 7-point scales. Participants rated how much anger was provoked by imagining the situation and how they would respond had the situation depicted actually happened.[2] Following all the provocation scripts, we measured participants' residual anger using the STAS.[3]

Treatment

Therapists. To improve treatment compliance, 2 Vietnam male combat veterans, who were experienced master's-level therapists, provided twelve 1-hr sessions of individual therapy.

Treatment validity. Treatment was manual guided (Novaco, 1983). A checklist for each session was used by the therapists. The study psychologist reviewed the audiotape and checklist of each treatment session before the next session to ensure manual adherence and provided therapist supervision. Randomly selected session tapes were reviewed independently by Roger S. Hamada to ensure treatment integrity. Finally, the manual's author, Raymond W. Novaco, reviewed the treatment by teleconference and site visit.

Anger treatment. Treatment involved (a) self-monitoring anger frequency, intensity, and situational triggers; (b) devising a personal anger provocation hierarchy based on self-monitoring; (c) progressive muscle relaxation, breathing-focused relaxation, and guided imagery training to regulate physiological arousal; (d) cognitive restructuring of anger by altering attentional focus, modifying appraisals, and using self-instruction; (e) training behavioral coping, communication, and assertiveness skills through role play; and (f) practicing the new anger coping skills while visualizing and role-playing progressively intense anger-arousing scenes from their personal hierarchies. In an important addition to the protocol, we focused on veterans' cognitive schemas related to combat experience, threat, survival, and trauma as they affected their present lives.

Routine clinical care control. This group received only routine clinical care after pretreatment assessment. Routine care comprised heterogeneous treatments typically received from veterans' centers (Vet Centers) and other VA mental health service centers (see Footnote 3). They were reassessed 12 weeks after pretreatment assessment.

Follow-Up

Approximately 18 months posttreatment, completers and dropouts were mailed the NAS, AX, BDI, and STAI. Participants were recontacted by mail and telephone to enhance response. Visits were made to Vet Centers to solicit support.

Results

Pretreatment Group Comparisons

Seven veterans (47%) from the AT condition and 6 from the RC condition withdrew before completing treatment. There were no significant differences between completers and dropouts on Mississippi Scale or NAS-A scores at screening. Similarly, in their pretreatment assessments, completers did not differ significantly from dropouts on total AX scores or NAS-A scores.

At pretreatment, the AT group did not differ significantly from the RC group in age, years of education, ethnicity, combat exposure, Mississippi, or NAS-A screening (see Table 1). On the pretreatment psychometric measures (see Table 2), there were no statistically significant treatment group differences on the anger measures or on the BDI, the STAI-State subscale, or the STAI-Trait subscale.

Treatment Group Comparisons at Posttreatment

Treatment effects were evaluated using analyses of covariance (ANCOVAs) with posttreatment scores as dependent variables and treatment condition (AT vs. RC) as the independent variable. To control for pretreatment variation, we used the pretreatment score on each posttreatment measure as the covariate. We present the effect size measure r (Rosnow & Rosenthal, 1988) for statistically significant analyses.[4]

Anger Disposition

ANCOVAs were conducted on the AX and the NAS. NAS data were incomplete for 1 veteran in the control group, and his data were excluded. The AT group differed significantly

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[2] Anger reaction responses included "starting an argument," "cursing or shouting," "wanting to hit the other person," and "wanting to pound or kick something." Anger control was rated on 7-point scales for "staying composed and being constructive" and "trying to understand the situation and keeping cool." To minimize Type I error, the ratings of anger and anger responses were combined into a summary index of anger reactions, which over four scenes had an average internal reliability of .87. Likewise, a summary index was created for ratings of anger control, with an average internal reliability of .87 over four scenes. To further minimize Type I error, these indices were summed across the two scenes at pre- and posttreatment.

[3] Our initial design also called for role-play provocation tests, as was done in Novaco (1975), to enable us to obtain behavioral ratings of responses to provocation. However, we were unable to recruit assistants to role-play anger provocation scenes because they were concerned about their personal safety given this population. Also, in an attempt to obtain a context-relevant measure of anger, participants were asked to keep a daily log of anger experiences, rating each experience on a 7-point scale regarding (a) the degree they felt angry, and (b) the degree they controlled their anger. Veterans' spouses or significant others were also asked to rate the veterans anger-related behaviors. Ratings from veterans and spouses were to be made daily for 1 week before and 1 week after treatment. Unfortunately, compliance was so poor for both veterans' and spouses' ratings that analyses could not be carried out.

[4] The Rosnow and Rosenthal (1988) calculation for effect size is $r = F/(F + df \text{ error})$. Cohen (1977) proposed the convention that an r of .1 be considered a "small" effect, an r of .3 be considered a "medium" effect, and an r of .5 be considered a "large" effect.

Table 2
Treatment Group Means (and Standard Deviations) for Anger, Depression, and Anxiety Measures

Measure	Anger treatment (n = 8)		Routine care (n = 7)		ANCOVA $F(1, 12)$
	Pretreatment	Posttreatment	Pretreatment	Posttreatment	
Spielberger Anger Expression Scale					
Total subscale	45.00 (6.07)	33.12 (10.76)	42.57 (9.95)	41.71 (11.34)	5.81*
Control subscale	14.88 (2.64)	21.38 (2.67)	16.71 (4.27)	16.00 (4.00)	17.61**
Anger-Out subscale	20.88 (3.14)	17.50 (6.16)	20.14 (6.36)	19.57 (5.50)	NS
Anger-In subscale	23.00 (3.55)	21.00 (3.78)	23.14 (4.26)	22.14 (3.48)	NS
Novaco Anger Scale					
Part A	108.00 (8.48)	100.38 (11.80)	113.86 (17.51)	98.57 (25.38)	NS
Arousal subscale	37.25 (3.06)	34.12 (4.16)	39.43 (4.35)	34.00 (8.50)	NS
Behavioral subscale	33.38 (3.42)	32.62 (4.66)	35.57 (7.91)	30.86 (10.22)	NS
Cognitive subscale	37.38 (3.96)	33.62 (4.72)	38.76 (6.44)	33.71 (7.06)	NS
Part B	68.25 (13.90)	56.57 (10.05)	78.40 (13.65)	74.14 (17.10)	NS
Beck Depression Inventory	22.25 (9.16)	14.62 (7.31)	25.50 (11.41)	21.28 (11.94)	NS
Spielberger State-Trait Anxiety Scale					
State subscale	51.50 (11.46)	38.14 (12.44)	51.50 (22.13)	56.57 (14.50)	8.88*
Trait subscale	54.75 (7.72)	45.14 (11.88)	62.28 (7.50)	55.71 (8.83)	NS

Note. There were no statistically significant group differences in the above measures at pretreatment. ANCOVA = analysis of covariance. * $p < .05$ for the ANCOVA on posttreatment scores. ** $p < .001$ for the ANCOVA on posttreatment scores.

from the RC group on AX Total scores, $F(1, 12) = 5.81$, $p < .04$, $r = .57$, as shown in Table 2. However, the two groups did not differ significantly on either the Anger-Out or the Anger-In subscales of the AX. Also, the AT group did not differ significantly from the RC group on the NAS-A.

Anger Reactions

There were no group differences in imaginal clarity for the provocation scenes, at either pretreatment or posttreatment testing. Therefore, we conducted ANCOVAs on the summary indices of anger reactions and anger control at pretreatment and at posttreatment. Significant treatment group effects were found for the ratings of anger reactions (see Table 3). After treatment, the AT group's ratings were significantly lower than those of the RC group. Anger reactions were also measured by the STAS at the end of the imaginal provocation procedure. The STAS scores of the AT group decreased significantly more from pretreatment to posttreatment, than did the scores of the RC group, as shown in Table 3.

Table 3
Means of Anger Reactions and Anger Control Measures for Imaginal Provocations Testing by Treatment Condition

Anger measure	*M* (and *SD*) for:	
	Pretreatment (n = 8)	Posttreatment (n = 7)
Anger reactions ratings		
Anger treatment	36.4 (12.1)	24.9 (7.6)
Routine care	45.6 (15.8)	39.3 (12.5)
Anger control ratings		
Anger treatment	12.9 (5.0)	19.9 (5.5)
Routine care	14.1 (5.4)	13.1 (5.3)
Spielberger State Anger Scale		
Anger treatment	30.1 (11.5)	19.5 (7.3)
Routine care	35.0 (16.7)	33.7 (14.9)

Note. The measures of anger reactions and anger control are indices summed across ratings and scenes, as described in the text. The analysis of covariance for treatment condition is significant for anger reactions, $F(1, 12) = 5.13$, $p < .04$, $r = .55$; for anger control, $F(1, 12) = 5.21$, $p < .04$, $r = .55$; and for state anger, $F(1, 13) = 6.17$, $p < .04$, $r = .57$. The r statistic is the effect size coefficient.

Anger Control

The AT group had significantly higher posttreatment scores on the Anger Control subscale of the AX, compared with those of the RC control group (see Table 2). The difference in Anger Control ratings obtained during imaginal provocation was also significant. The means shown in Table 3 indicate the AT group had significantly more anger control in response to provocation.

Psychophysiological Measures

For heart rate and for systolic, diastolic, and mean arterial blood pressure, a proportion of baseline score was calculated for each epoch, then averaged for pre- and posttreatment. ANCOVAs with these posttreatment scores did not show treatment effects for heart rate, systolic blood pressure, diastolic pressure, or mean arterial pressure for either provocation or mental arithmetic conditions.

Depression and Anxiety

There were no significant group differences on posttreatment BDI scores or on STAI-Trait subscale scores. However, on STAI-State subscale scores, a significant effect was found for the anger treatment. Table 2 indicates that state anxiety decreased in the AT condition, whereas it increased in the RC condition.

Trauma-Related Symptoms

We performed ANCOVAs on the CAPS items. Controlling for pretreatment scores, the AT group reported less frequency

of reexperiencing, $F(1, 12) = 8.27$, $p < .02$, $r = .64$. This was supported by a trend for lower intensity of reexperiencing, $F(1, 12) = 4.63$, $p < .06$, $r = .53$.

Follow-Up

Follow-up data were collected from treatment completers and from drop-outs.[5] Twenty-two of the 28 participants who began treatment completed the questionnaires: 14 of 15 (93.4%) of the completers and 8 of 13 (61.5%) of the dropouts. We performed ANCOVAs on the follow-up scores for NAS, AX, BDI, and the State and Trait subscales of the STAI, using the corresponding pretreatment scores as covariates. The only anger variable showing a significant treatment group effect was the AX anger control measure, $F(2, 18) = 3.75$, $p < .05$. The AT group ($M = 20.6$, $SD = 5.3$) had higher anger control scores than either the RC group ($M = 14.8$, $SD = 3.9$) or the dropouts ($M = 17.5$, $SD = 4.8$).

Discussion

Vietnam War combat veterans with severe chronic PTSD and high anger benefited from a structured brief intervention targeting anger symptoms. Most significantly, patients completing anger treatment reported an increased capacity to control anger, and this treatment gain was maintained at the 18-month follow-up. Patients in the AT group also reported less intense reactions to anger-provoking situations. One patient's report illustrates treatment related changes: "I still get very angry, but now I can leave the room before I explode and bang somebody up. I calm myself down, and then I come back."

The groups did not differ on the psychophysiological measures obtained during anger provocation, nor were there were differential treatment effects on the dispositional, traitlike, aspects of anger, as measured by the NAS and the AX Anger-In and Anger-Out subscales. This finding may be attributable to (a) insufficient measurement sensitivity, (b) anger disposition being slower to change because of its characterological nature, (c) limited treatment effectiveness, or (d) insufficient power. To further evaluate anger disposition's resistance to change, we conducted post hoc t tests on the anger disposition indices for each of the treatment groups. For the RC control group, there was a nonsignificant decrease in anger disposition from pre- to posttreatment. For the AT group, there were significant decreases in the NAS-A cognitive domain, $t(7) = 2.81$, $p < .03$; and AX Anger-Out scores, $t(7) = 2.86$, $p < .03$. This suggests that the lack of treatment effects on anger disposition is likely a function of limited power in this study.

The treatment differences on the anger control measures, together with the significant decrease in the NAS Cognitive score for the AT group, suggest that the anger treatment primarily enhanced cognitive regulation of anger. This finding is consistent with theories of PTSD, which emphasize deficits in cognitive and regulatory processes as the core dysfunction of the disorder (Chemtob et al., 1997; Chemtob et al., 1988). Future research should give greater attention to anger control.

The significant treatment effects may have been due to group composition biases caused by small samples unmitigated by random assignment and statistical control. However, sample size reduced statistical power working against our hypotheses, given that means were consistently in the predicted direction. Although, the high dropout rate limits generalizability, comparison of completers and dropouts failed to find group differences.[6]

Study participants were highly disordered by severe PTSD and extreme anger, as illustrated by the case of 1 participant who completed all pretreatment assessment but refused treatment after an incident in which he physically assaulted a Vet Center counselor. At follow-up, he had murdered his girlfriend in a fit of rage and is now in prison for life. This is not an isolated example of the potential for violence of the study participants. All 28 veterans who started treatment reported having serious arguments in the 6 months before assessment. During these arguments, 46% threatened physical violence, 36% destroyed property, 21% had a physical fight, 18% used a weapon to threaten another person, and 7% actually used a weapon to hurt someone. Thirty-two percent had been arrested for assault; 25% had been arrested for disorderly conduct, and 11% had been arrested for weapons offenses. Clearly, their anger and aggression were a threat to others.

Failure to treat PTSD veterans with extreme anger has extraordinarily high personal and social costs. The present findings support increasing resources to treat this population and suggest multisite treatment trials to further evaluate anger treatment. Our experience in this study strongly suggests that outcome research with this population requires greater resources than are commonly associated with treatment outcome studies. Finally, by showing that even severely angry patients can increase their control over anger, this study sounds a note of cautious optimism.

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[5] One control group veteran had moved away and could not be contacted. Because one control group participant received the anger treatment after the study's posttreatment phase, he was included in the anger treatment group in follow-up analyses.

[6] We were aware at the outset that high participant dropout is the norm in PTSD treatment research. Vietnam War veterans with PTSD distrust research and often perceive it as exploitative (like military service). We attempted to mitigate this problem systematically. For example, experienced Vietnam War veterans were chosen as therapists in the hope of promoting trust and alliance between participants and therapists. Even this did not always help. One veteran angrily denounced his therapist, who had been frequently in combat as an officer in Vietnam, saying "anyone knows officers cannot be trusted." Also, we provided reminders of appointments, sought to establish therapeutic alliances with significant others, coordinated our treatment closely with other providers, and designed our treatment protocol to provide for primary care concurrent with our adjunctive treatment. These steps kept our dropout rates (46.4% of those who began treatment) within the upper range experienced by investigators as described by Solomon, Gerrity, and Muff (1992) but did not fully succeed in mitigating the attrition and retention problems associated with treating highly disordered clinical groups.

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